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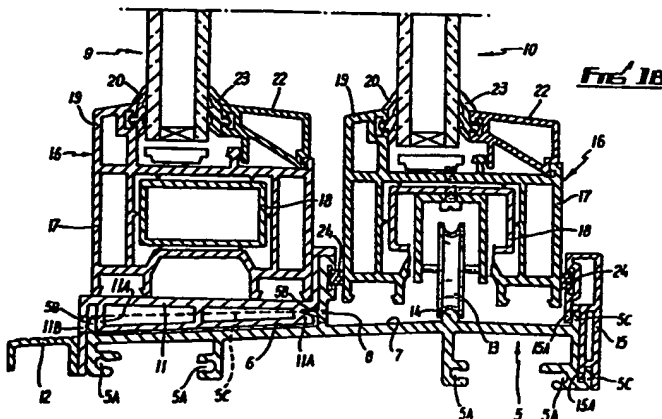
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54 Patio door constructions.

57 A sliding door assembly has a main frame (5) defining inner and outer parallel tracks (6, 7) and a detachable trim strip and door retaining member (15) defining the inner edge of the inner track. The main frame is preferably formed from identical top, bottom and side frame members each of which

comprises a one piece section (5) defining said parallel tracks (6, 7) and incorporating an integral projection forming a divider (8) adapted to extend between and separate doors (9, 10) located in respective ones of said tracks.



Patio Door Constructions

This invention relates to door constructions and is especially, but not exclusively, applicable to patio doors.

5 Previously proposed patio door constructions suffer from a number of disadvantages. In particular frame components of complex construction are utilised and different components have hitherto been utilised at the bottom, sides and in some cases top, of the frame
10 construction. Moreover in many cases the frame components have been relatively bulky and unsightly when installed, and complex door mounting and running gear has been required.

It is an object of the present invention to obviate
15 or mitigate at least some of these disadvantages.

According to one aspect of the invention there is provided a frame component for the outer or main frame of a sliding door assembly, the frame component comprising a one-piece section defining parallel inner and outer
20 tracks and a divider formed integrally therewith between said tracks and adapted to extend between and separate doors housed in the respective tracks.

The frame component is preferably of metal construction to provide rigidity and is preferably provided with
25 formations adapted to receive a detachable trim strip

and door retaining member at the inner edge of the inner one of said tracks whereby a door may be moved generally horizontally into engagement with said inner track with said trim strip removed and may be
5 retained in position by fitting of the trim strip to said frame component.

Thus according to a further aspect of the invention there is provided a sliding door assembly having a main frame defining inner and outer parallel tracks,
10 and a detachable trim strip and door retaining member defining the inner edge of the inner track whereby a door member may be moved generally horizontally into engagement with said inner track and retained in position by fitting of said trim strip to said main
15 frame.

Preferably the main frame is formed from identical top, bottom and side frame members each of which comprises a one piece section defining said parallel tracks and incorporating an integral projection forming
20 a divider adapted to extend between and separate doors located in respective ones of said tracks.

Preferably also the door assembly comprises a fixed outer door located in said outer track and a movable inner door slidably located in said inner track.
25 The outer fixed door is preferably mounted on a non-metallic cloaking member engaged with the outer one of said tracks in said main frame component and extending

over the exposed metallic surfaces thereof to shield same from exposure to external temperatures.

Preferably the inner slidable door frame is provided with flanged wheels rotatably mounted at the lower edge thereof and engaged with a complimentary guide formation extending longitudinally of the inner one of said parallel tracks.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1A is a vertical cross-section through the upper portion of a patio door assembly according to one embodiment of the invention;

Fig. 1B is a vertical cross-section through the lower portion of a patio door assembly according to one embodiment of the invention; and

Fig. 2 is a horizontal cross-section through part of the door assembly shown in Fig. 1.

Referring to the drawings, the door assembly comprises an outer or main frame 5 of extruded aluminium constructed from identical top, bottom and side frame members each of which comprises a one-piece frame member defining an outer track 6 and an inner track 7 and having an integral flange directed inwardly of the frame and forming a dividing member 8 projecting between doors located in respective ones of said tracks. Formations 5A project outwardly from the frame members 5 (that is in a direction towards the surrounding opening in a building or the like in which the door assembly is located) and corner connectors (not shown)

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of generally L-shaped section engage with the formations 5A and secure the components together at right angles to form the frame 5.

5 The doors comprise a fixed outer door indicated generally at 9 and a slidable inner door indicated generally at 10, the combined width of the two doors being slightly greater than the width of the frame 5. The fixed outer door 9 is secured by screws or other suitable means in a plastic cloaking member 11 fitted
10 to the frame 5 and located thereon by engagement between formations 11A on the cloaking member and projections 5B on the frame member. The cloaking member extends over and cloaks the exposed surfaces of the outer track 6 and the dividing member 8 of the
15 frame 5 whereby to shield same from direct contact with external weather and prevent conduction of cold to the inner track 7. A separate external sill 12 is screwed or otherwise attached to the outer vertical face 11B of the cloaking member 11 at the bottom of
20 the door construction.

The slidable internal door 10 is mounted on two or more wheels 13 engaged with a projecting bead 14 extending longitudinally of the inner track 7 so as to permit rolling or sliding movement of the door 10
25 between a closed position off-set from the fixed door 9 as shown in Fig. 2 and an open position alongside the door 9. The inwardly directed surface of the main frame

member 5 is inclined from the bead 14 to the outer region of the frame, the inclination being such that the lower frame member slopes downwardly and outwardly and thereby allows water to drain clear of the bottoms of the doors through drainage passages 5C provided at spaced intervals along the frame member 5 and the underside of the cloaking member 11.

A detachable trim strip and retaining member 15 is engaged with the inner edge of the inner track 7 and when detached enables the inner door 10 to be located in the track 7 and engaged with the rail 14 by generally horizontal movement from within the room or the like in which the door assembly is fitted. The trim strip 15 may then be engaged with the main frame member 5 and retains the door 10 against lateral displacement while permitting sliding movement along the track 7. The trim strip 15 is of extruded plastics construction and presents a neat appearance to the track when viewed from within the room or the like in which the door is fitted. The trim strip is provided with outwardly projecting lips or flanges 15A which engage over inwardly directed complementary flanges 5C or the frame members 5 to locate the trim strips in position, mitred joints being formed at the corners of the frame.

This arrangement facilitates fitting of the slidable door compared with most previously proposed arrangements which require the door to be lifted into a

recess in the upper end of the frame and then lowered into engagement with a track at the base of the frame. This increases the size of the frame components due to the need to create space at the upper end of the frame to permit lifting and lowering of the door and prevents the use of identical frame components at top and bottom. Such arrangements also require the provision of locking means to prevent unauthorised lifting and removal of the slidable door or doors after installation.

Each of the doors comprise identical glazed frames consisting of extruded plastics frame members 16 each having a main body portion 17 incorporating an internal metal reinforcing member 18 and provided with an integral peripheral abutment portion 19 fitted with a seal 20 against which the edges of a sealed double glazed unit 21 abut. The unit 21 is retained in position by detachable glazing bead 22 carrying a further sealing member 23 and engaged with retaining formations formed on the body portion 17. All four sides of both the inner and outer door frames are of identical construction save for the provision of the wheels 13 at the bottom of the frame of the sliding door 10. The sliding door 10 may thus roll along the bead 14 and is sealed against the sides of the track by brush seals 24 located in recesses or channels provided in the inner face of the dividing member 8 and in the outer face of the retaining member 15.

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In assembling the door construction, the outer frame 5 is secured in a suitable cavity in a wall in which the door is to be fitted and the cloaking member 11 and sill 12 are fitted in the outer track 6, following which the frame of the outer door 9 is inserted and secured in position. The frame of the inner door 10 is then located in the inner track 7 with the wheels 13 in rolling engagement with the bead or rail 14 and the retaining member 15 is then clipped to the inner edge of the main frame component 5 to retain the sliding door in position. Thereafter both doors may be glazed by inserting single panes of glass or double glazed units in contact with the abutment members 19 and retaining them in position by fitting of the glazing beads 22. Where single pane glazing is utilised, an additional packing piece (not shown) is inserted between the glazing beads 22 and the abutment members 19 in order to accommodate the single pane rather than the double glazed units 21 illustrated. Vertical overlapping seals 25 are fitted to the upright side frame members of the doors which are centrally positioned when the sliding door is closed and co-operate to form a weather seal between the doors as shown in Fig. 2.

By virtue of the arrangement described there is provided a sliding door system suitable for use as a patio door which is of extremely simple construction

compared with those available hitherto and which uses a minimum number of components. The entire outer frame is constructed from the same metal section and the frames of both doors are constructed from frame components of identical section. Conduction of cold from the exterior of the door assembly is reduced by cloaking of the exposed portions of the metal frame and the door frames are readily adapted for single or double glazing by use of appropriate glazing beads.

10 Various modifications may be made without departing from the invention. For example although in the arrangement described one door is fixed and the other slidable, both doors could be slidably located in their respective tracks if desired.

C L A I M S

1. A frame component for the outer or main frame of a sliding door assembly, characterised in that the frame component comprises a one-piece section (5) defining parallel inner and outer tracks (6, 7) and a divider (8) formed integrally therewith between said tracks and adapted to extend between and separate doors (9, 10) housed in the respective tracks.
2. A component according to claim 1 characterised in that it is provided with formations (5C) adapted to receive a detachable trim strip and retaining member (15) at the inner edge of the inner one (7) of said tracks.
3. A sliding door assembly characterised by an outer frame (5) constructed from identical top, bottom and side frame components according to claim 1 or 2.
4. A sliding door assembly characterised by a main frame (5) defining inner and outer parallel tracks (6, 7) and a detachable trim strip and door retaining member (15) defining the inner edge of the inner track (7).
5. A door assembly according to claim 4 characterised in that said main frame is formed from identical top, bottom and side frame members each of which comprises a one piece section (5) defining said parallel tracks (6, 7) and incorporating an integral projection (8) forming a divider adapted to extend between and separate doors (9, 10)

located in respective ones of said tracks.

6. A door assembly according to any of claims 3 to 5 characterised in that it comprises a fixed outer door (9) located in said outer track (6) and a movable inner door
5 (10) slidably located in said inner track (7).

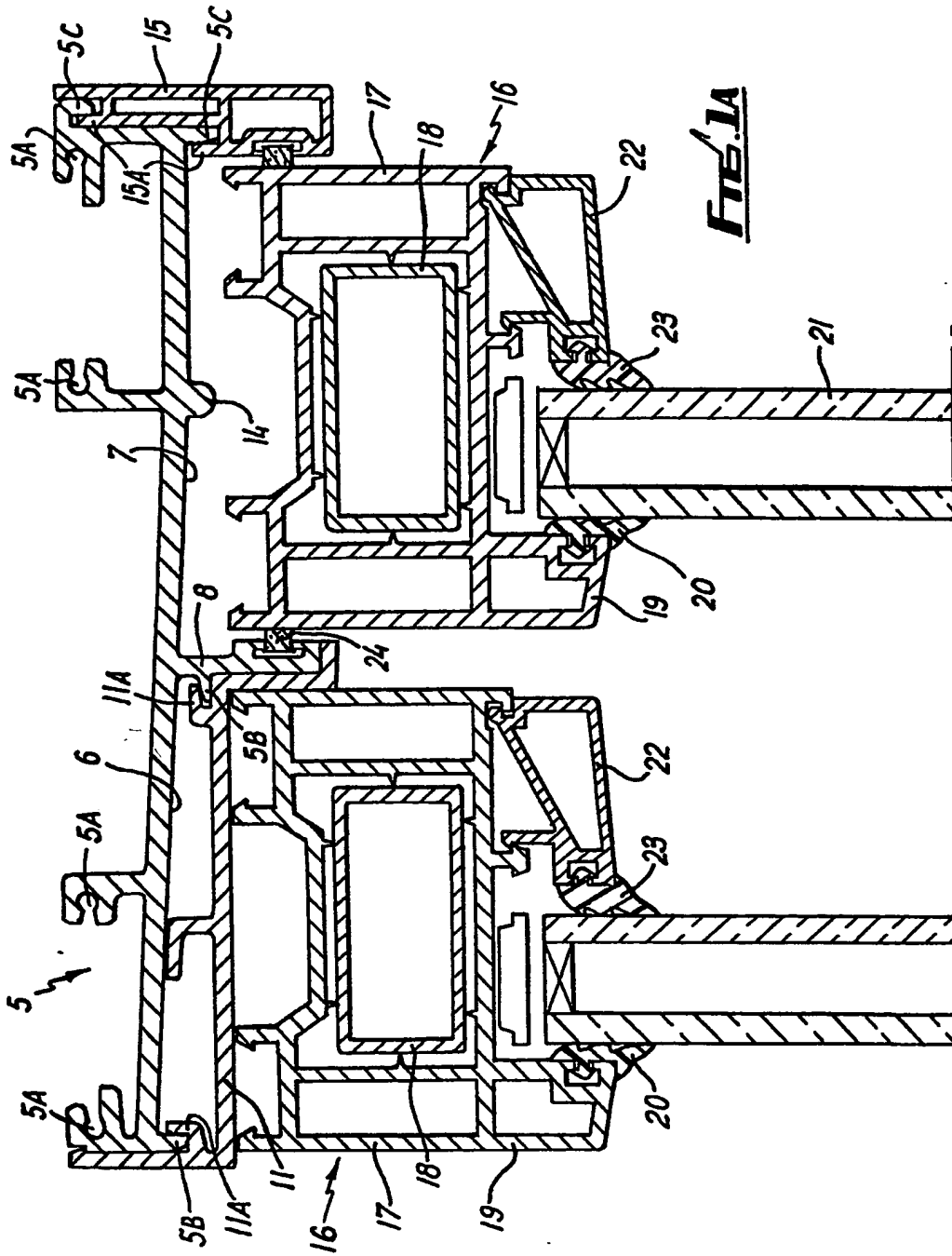
7. A door assembly according to claim 6 characterised in that said main frame (5) is of metal construction and a non-metallic cloaking member (11) is engaged with the outer one of said tracks (6) and extends over the exposed
10 surfaces of the outer track and of said divider (8) to shield same from exposure to external temperatures.

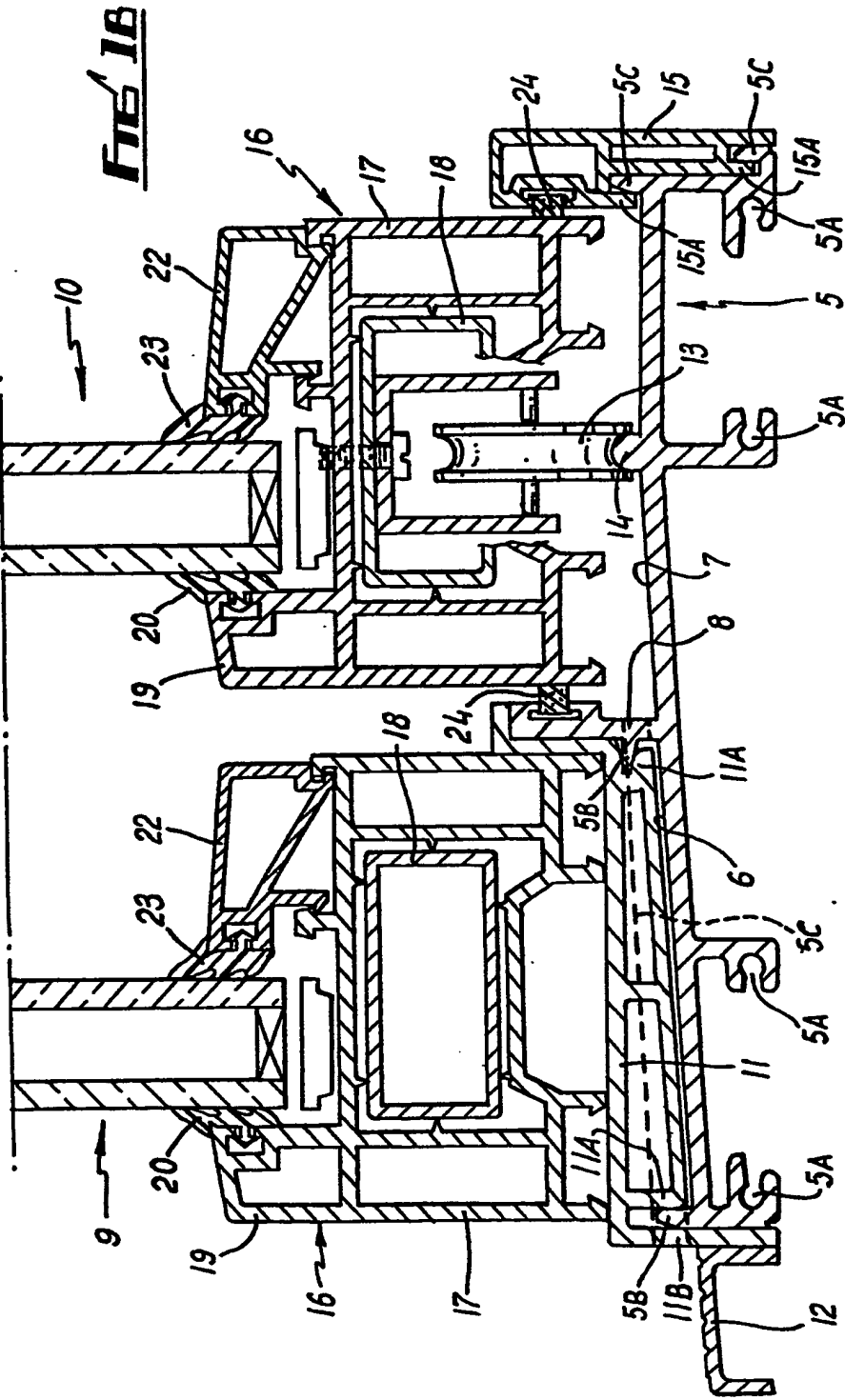
8. A door assembly according to claim 6 or 7 characterised in that the inner slidable door frame (16) is provided with flanged wheels (13) rotatably mounted at the lower
15 edge thereof and engaged with a complimentary guide formation (14) extending longitudinally of the inner one (7) of said parallel tracks.

9. A door assembly according to any of claims 6 to 8 characterised in that the inner face of said divider (8)
20 and the outer face of said retaining member (15) are provided with brush seals (24) engageable with opposite faces of said slidable door (10).

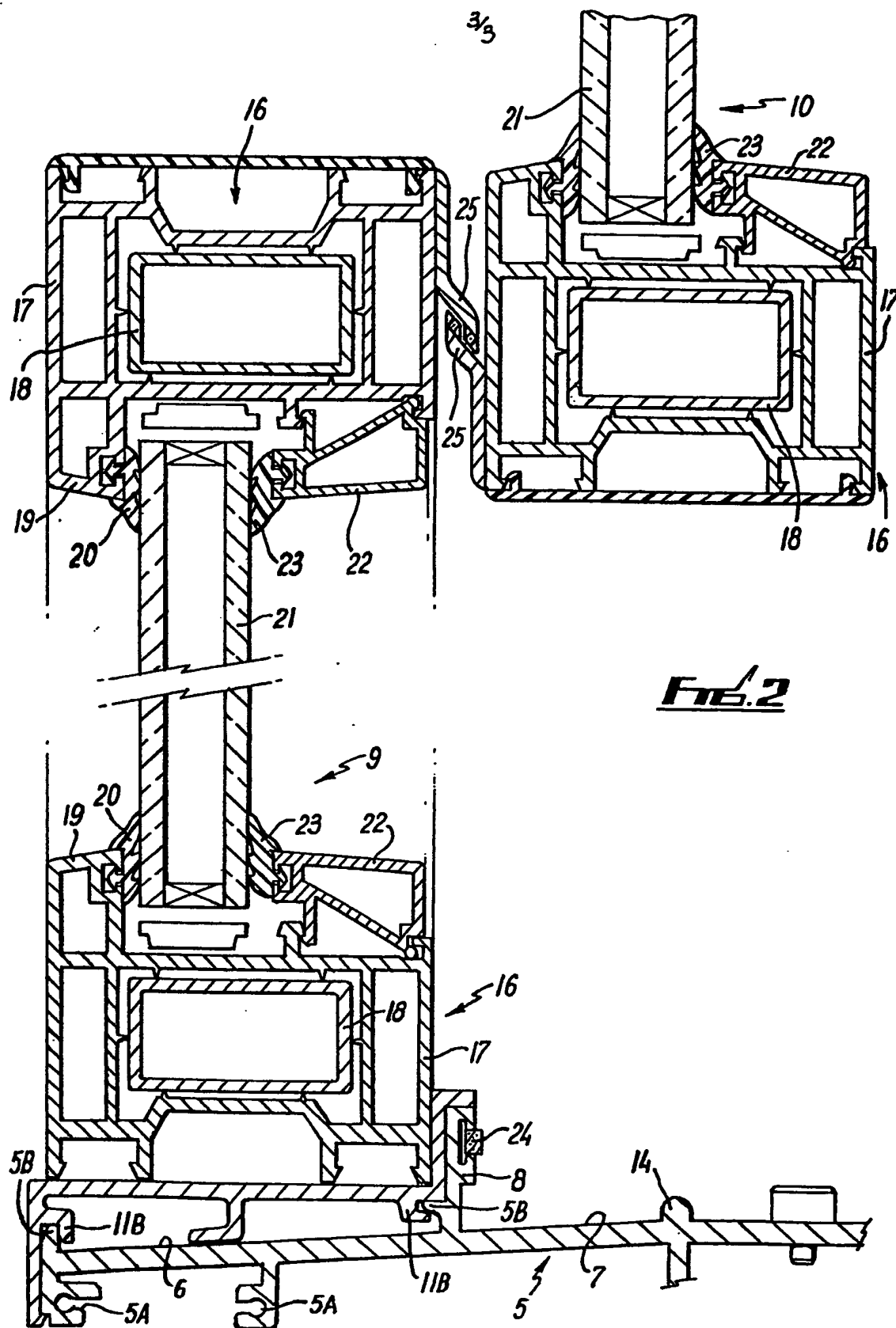
10. A door assembly according to any of claims 6 to 9 characterised in that each of said doors (9, 10) comprise
25 glazed frames formed from frame components (16) of identical construction and located in respective ones of said tracks (6, 7).

11. A door assembly according to claim 10 characterised in that said door frame components comprise body portions (16) having integral inwardly directed abutment portions (19) located at the outer edges thereof, and glazing panes or units (21) retained in abutment with said abutment portions (19) by detachable glazing members or beads (22) engaged with retaining formations on said body portions at the inner edges thereof.

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European Patent
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EUROPEAN SEARCH REPORT

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Application number

EP 82 30 6303

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 7)
X	DE-B-2 431 314 (GEBR. UHL GMBH & CO. KG) * Figure *	1,3	E 06 B 3/42
A		5,7,10 ,11	
X	FR-A-2 441 044 (A. FEY) * Figure *	1	
A		7,8-10	
A	DE-A-3 011 946 (GOLDE GMBH SPRITZGUSSWERKE) * Figure 9; page 8, paragraph 3 *	2,4,9- 11	
A	US-A-3 530 618 (A. GROSSMAN) * Column 4, lines 52 to 58; column 6, lines 1- 27; figure 4 *	6-8	
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 28-01-1983	Examiner WUNDERLICH J E
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	